



# Zephyr<sup>®</sup> Project

## Developer Summit

# Improving Embedded Linux Development with BeagleBoard.org

Jason Kridner, BeagleBoard.org Foundation, JK Embedded  
@jadon

Drew Fustini, BeagleBoard.org Foundation, BayLibre  
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Kathy Giori, BeagleBoard.org Foundation, MicroBlocks  
@kgiori



BeagleBoard.org exists exclusively as a non-profit seeking to improve the state of embedded Linux (and Zephyr) development. Come join to learn about the latest developments from the BeagleBoard.org organization and how you can get involved to shape the project's direction.

## BeagleBoard.org Foundation Leadership



Christine Long  
CEO



Jason Kridner  
Board Member  
JK Embedded



Robert Nelson  
Board Member  
DigiKey



Mark Yoder  
Board Member  
Rose-Hulman  
Institute of Technology



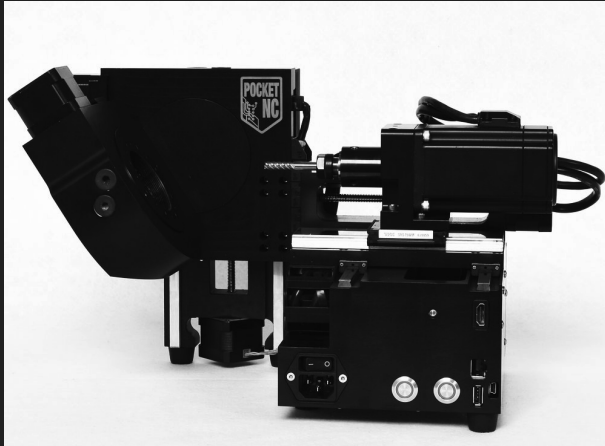
Drew Fustini  
Board Member  
BayLibre



Kathy Giori  
Board Member  
MicroBlocks

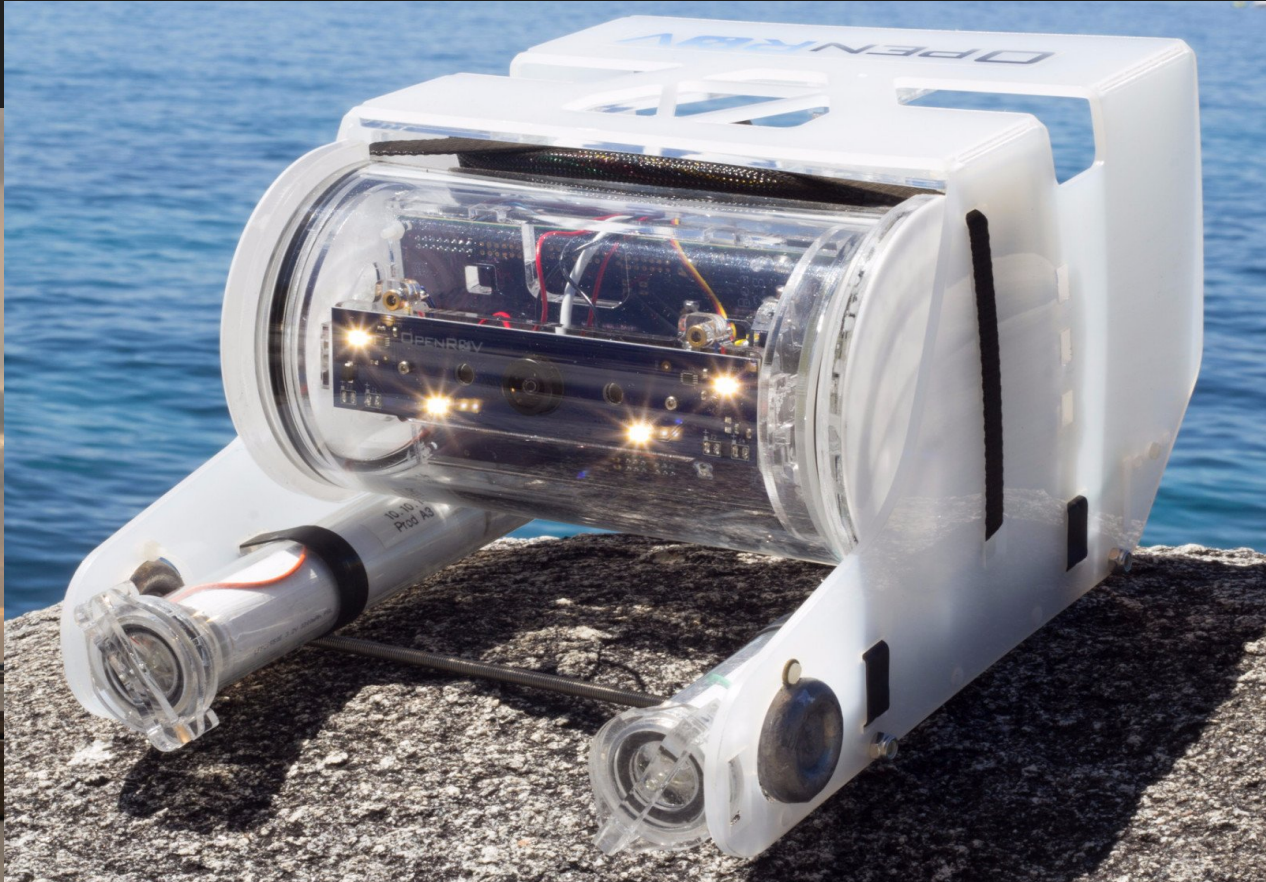
# What makes Beagle special? [bbb.io/about](http://bbb.io/about)

- Focus on embedded, reliability, longevity, control and machine learning, not just cheap computers
- Approach is open and collaborative with open hardware, detailed documentation and open source software
- Entrepreneurial and open community of domain experts that share our passion and approach
- Supported by Michigan, USA based non-profit BeagleBoard.org Foundation





From deep space



To deep ocean







Dozens of books



beagleboard.org

BeagleBoard.org Foundation information - selective disclosure

bbb.io/books





# Hundreds of cape add-on boards







# Thousands given hands-on professional training courses

Used in Linux Foundation embedded Linux training



Testing a Space Rover Under Alaskan Ice

BeagleBone

# Tens of thousands of projects

Piloted beneath the arctic ice!

Voice of

**Kevin Hand**

ASTROBIOLOGIST, NASA/JET PROPULSION LABORATORY  
NATIONAL GEOGRAPHIC EMERGING EXPLORER

0:06 / 1:54





World's first cheeseburger robot!

Uses BeagleBone & Linux

Over a hundred thousand  
collaborative innovators



Even safety critical applications

BeagleBone

Over 6 million  
boards





# BeagleBone® AI-64

Expansion headers compatible with many BeagleBone® cape add-on boards

M.2 E-key connector with PCIe, USB, and SDIO for WiFi/Bluetooth and expansion

5 user LEDs and 1 power LED

Wake-up domain serial port

Main domain serial port

USB super-speed (5Gbps) Type-C port with power input (5V@3A)

Boot button

Power button

Reset button

16-pin microcontroller header

Gigabit Ethernet

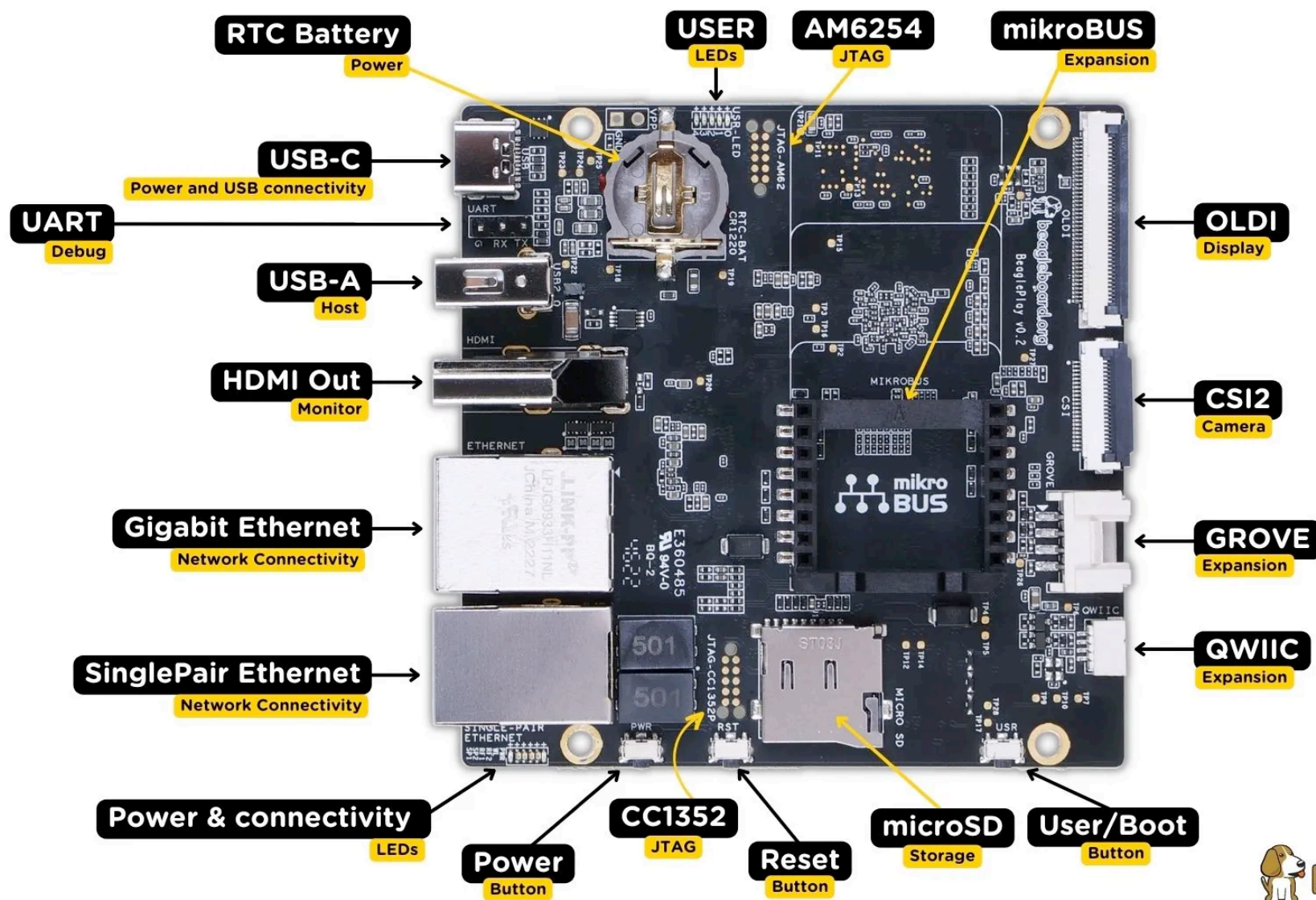
Dual USB super-speed (5Gbps) Type-A host ports

Mini-DisplayPort

5V input power

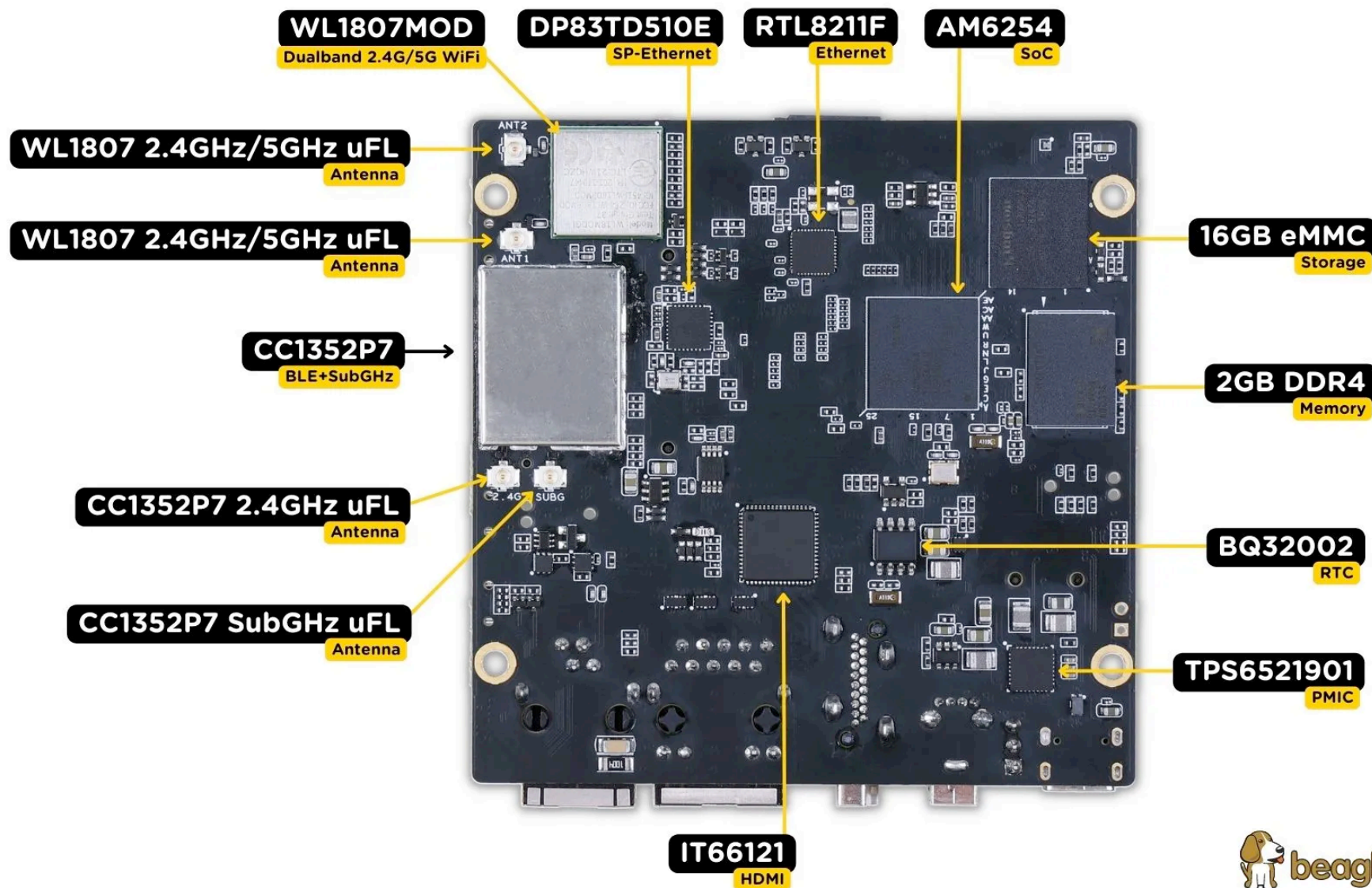
## Bottom-side:

- Texas Instruments TDA4VM system-on-chip with dual Arm® Cortex® -A72, C7x DSP, and deeplearning, vision and multimedia accelerators
- 4GB DDR4 RAM
- 16GB on-board eMMC flash storage
- Micro-SD slot
- Dual CSI-2 camera connectors



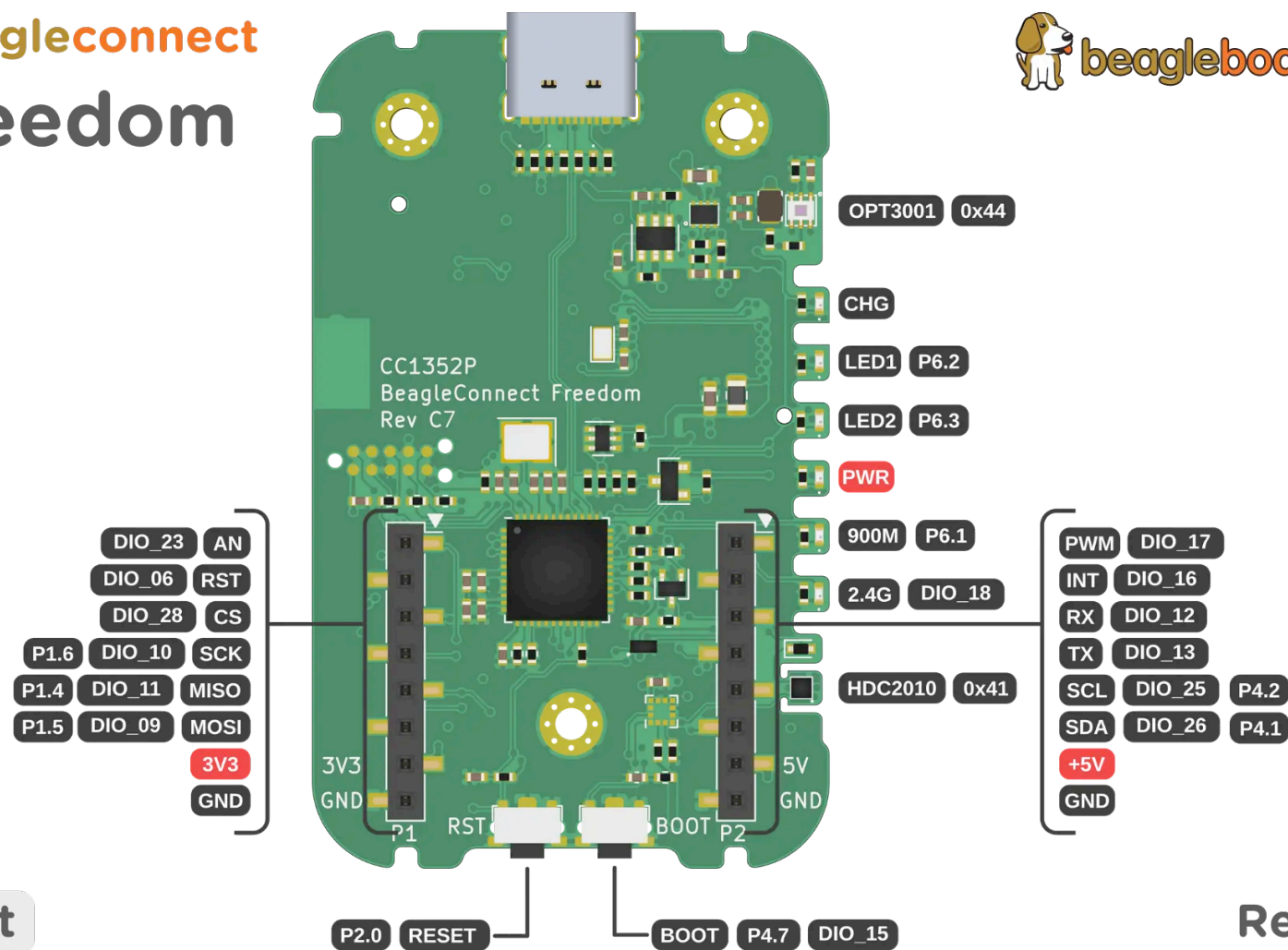
# BeaglePlay

# BeaglePlay





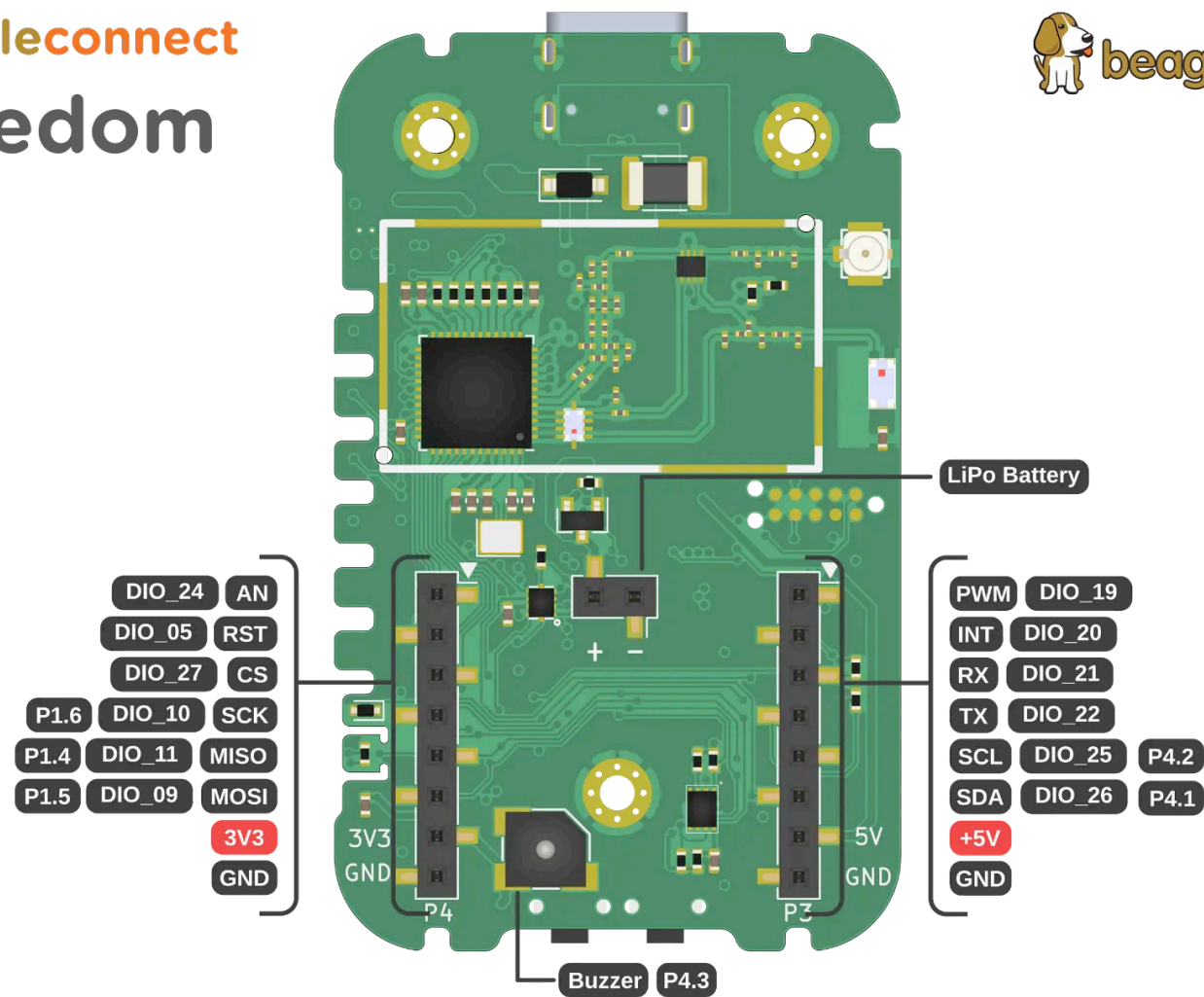
## beagleconnect freedom



Front

Rev C7

# beagleconnect freedom



Back

Rev C7





# RISC-V

# mikroBUS

# AI

# Greybus

# SubGHz RF

# Single Pair Ethernet

# Round Table